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U.S. Industrial Outlook • A Look at Purchasing Software
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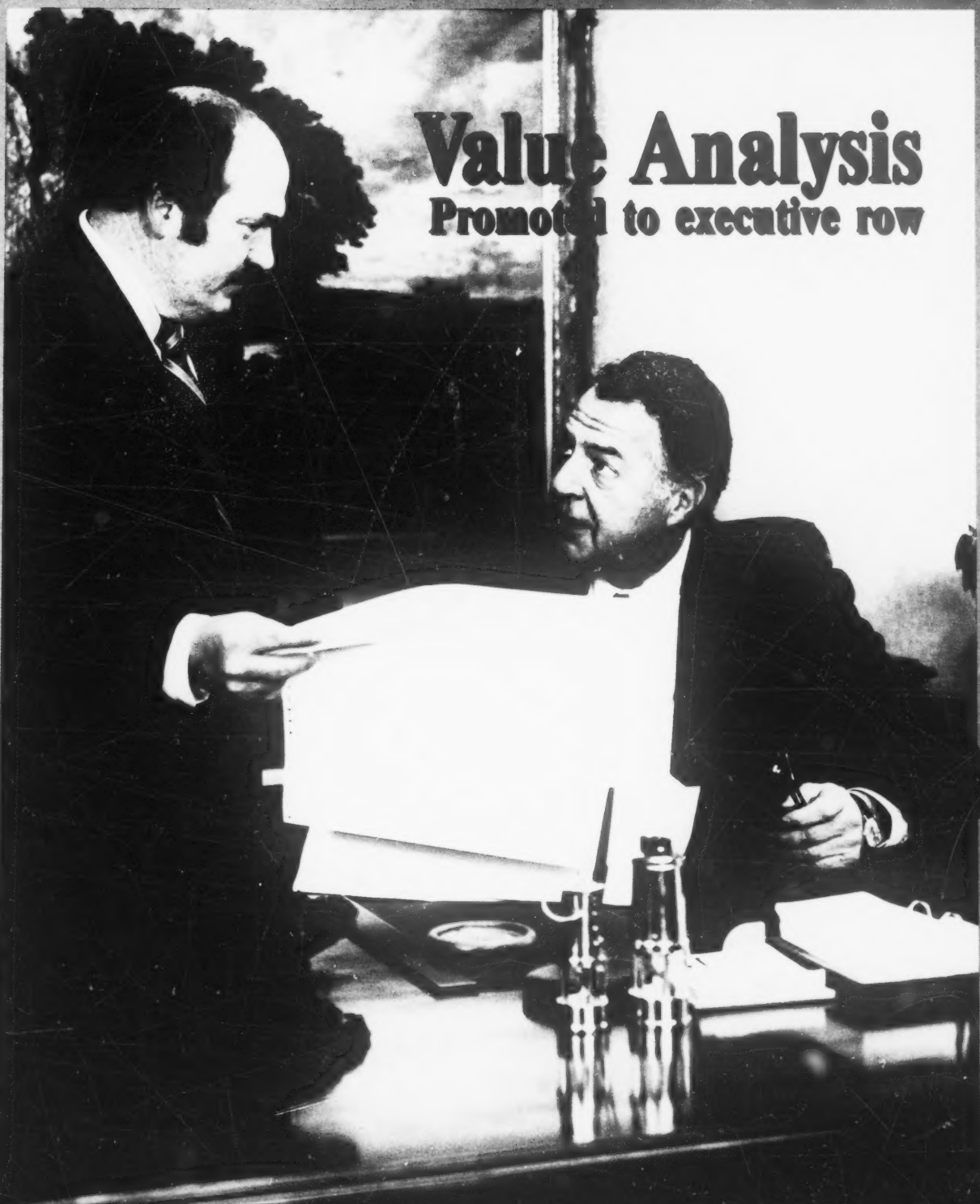
PurchasingWorld®

THE BUYER'S MAGAZINE FEBRUARY 1990



Value Analysis
Promoted to executive row

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PurchasingWorld

PW POINTERS

Venders to Motorola must take classes

Selling to Motorola Inc. has several prerequisites including taking three courses before you can become a supplier, says Harry Woodworth, materials operations manager, at the firm's Boynton Beach, FL, pager manufacturing operation. He told a procurement conference at the University of San Diego put together by Prof. David Burt, that the courses include manufacturing cycle management, design for manufacturing, and statistical process control. The classes are conducted by Motorola. He's found that it is a profitable exercise in reducing cycle times when you get everyone involved and knowledgeable in those areas.

NOMDA opens office equipment museum

The National Office Machine Dealers Assn. (NOMDA) has moved to preserve a bit of business memorabilia; it has opened a museum dedicated to office equipment. It offers authentic offices from four different periods—the 1890s, the 1920s, the 1950s, and the office of today. A portion of the display area is also dedicated to several manufacturers who have made significant contributions to the development of the industry. The unique facility is located in Kansas City, MO—the home of the association—and will be open to the public during regular business hours. Special tours for school children and other groups can be arranged.

One-day session improves writing skills

Small companies that do not have the time for multi-session training programs can now improve employee writing skills conveniently. International Writing Institute Inc. president, Albert Joseph, now has developed a one-day workshop edition of the "Put It in Writing" program. The course is designed to help professional men and women write more clearly and to organize letters and reports more effectively. Although the course goes into some depth, it is simple enough to permit anyone to teach it. All learning activities are built into the course materials and do not depend on the skill of the instructor, it's claimed. The course activities tailor themselves for each user organization by requiring each participant to learn from his or her own letters or reports. Subjects covered include the principles of clear writing, how to ignore writing taboos, organization, meeting deadlines, and tips for nonsexist writing. *International Writing Institute Inc., Hanna Bldg., 1422 Euclid Ave., Cleveland, OH 44115.*

Coke out to help small, minority vendor

Coca-Cola Enterprises is out to expand its Small, Minority, and Women-Owned Business Vender Development Program because such companies represent a "key link in our supplier base and an invaluable resource." Each CCE Bottling Company is to make personnel available to execute the program. It has created a Corporate Vendor Development Program office which is charged with the responsibility of assuring that full consideration is given to such vendors which have a minimum of one-year established history. It'll also launch an active search to find such vendors.

Radiation hotline for VDT safety

January marked the start of a nationwide hotline service to distribute free information on government and private sector studies concerning radiation dangers. The hotline sponsor wants to accelerate awareness of VDT health hazards, especially in light of IBM's plan to reduce radiation levels in future personal computers. *NoRad Corporation, 1549 11th St., Santa Monica, CA 90401*

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PW PREDICTS

1990 industrial price outlook

All signs point to continued moderation in industrial inflation rates.

The big brake on prices, can, of course, be traced to the slowdown in general business demand. Industrial production, for example, is expected to rise at only about a 1% annual rate over the next few quarters—down significantly from last year's 3% overall advance.

Still-increasing factory capacity also helps explain some of today's hold-the-price-line optimism. New industrial potential is increasing at nearly a 3% annual rate—three times as fast as the projected near-term production increase. Upshot: another 2% or so decline in the overall factory operating rate—into the "buyers' market" 81% range.

In any event, excess supplies have already helped soften tags in a host of key raw materials. These include steel, aluminum, copper, zinc, paper, plastics, a host of chemicals, and selected electronic components.

All of this shows up in *PurchasingWorld's* raw material price barometer. At latest report, these market-sensitive quotes were a sharp 10% under last spring's high.

But supply/demand factors are not the only forces helping to keep a lid on prices. For one, most firms are still implementing cost reduction strategies—including tighter inventory controls and stronger resistance to procurement cost hikes. Their threats to shift to substitutes may also be playing a role here.

Still another inflation suppressant: our relatively good productivity performance. In some industries, like paper, this has led to actual unit labor cost declines. The efficiency gain for all manufacturing isn't all that bad, either, (2.3% over the past 12 months). This, in turn, has kept the rise in overall factory unit labor costs to just a fraction over 2% over the same period.

PW's new import survey also helps explain some of the price restraint. As pointed out elsewhere in this issue—not only have some incoming prices edged lower, but the price saving on imported goods now runs in excess of 10%.

Throw all of the above into the hopper, and it's easy to see why most 1990 price projections are so upbeat. A new one by Wharton Econometrics (the WEFA Group) sees overall industrial tags rising only 1.5% this year—far under the 3.6% and 5.2% advances of 1988 and 1989, respectively.

Equally important, this moderation is pretty much across the board. The specific changes (all of 1990 vs. all of 1989): refined petroleum products (-3.4%), natural gas (-1.7%), textiles and apparel (3.1%), industrial chemicals (-2.1%), plastic resins (-11.3%), lumber (5.9%), paper (0.9%), paperboard (-3.2%), steel (0.7%), nonferrous (-13.0%), fabricated metals (3.6%), and machinery (2.5%).

Even the service-oriented cost-of-living index is targeted for some modest deceleration. WEFA's estimate here: a 3.7% increase (vs. 4.8% for the year just ended).

The latter estimate is backed up by a *Wall Street Journal* survey of 40 top economists. Their average cost-of-living projection: 4.1% for the current year.

To be sure, this is still a long way from the zero inflation rate goal being bandied about in Washington these days. But it's still darn good, considering the fact that 1990 will mark the eighth straight year of economic upturn.

In this section: Reports on copper prices... what's happening with construction materials... latest developments in paper supplies... the electronic equipment market... and specific updates on commodities for buyers.

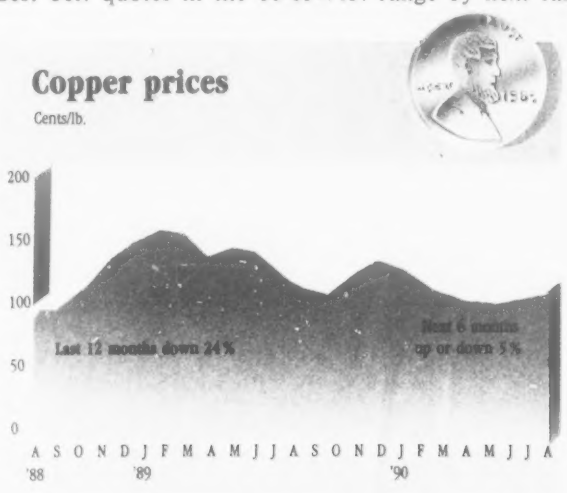
Copper prices level off

CURRENT SITUATION: Prices are leveling off after a slide which has lopped close to 30¢/lb. off the going quote over the past few months. Compared to the beginning of last year, the drop is close to 50¢/lb. Behind the softness: rising production and less-than-sensational demand (up only fractionally on the domestic front in 1989 to 2.2 million metric tons). **On the other hand, the market remains jittery**—primarily because of low global stock levels.

DEMAND: The new year doesn't look all that robust. Domestic consumption should be flat, or even down a bit. Part will be due to slowing or zero growth in the construction and electric/electronic equipment sectors. And use in the auto area looks to be down. **But some of these declines will be blunted by good overseas demand,** which is expected to push global use up by as much as 2%. Meantime, long-term trends are mixed. On the minus side, substitution and new technology will cut usage in the telecommunication and equipment markets. But the metal should benefit from growth in the roofing and automotive electrical areas.

SUPPLY: Gradual improvement is expected to continue—in part because no major supply interruption is anticipated and in part because of increased global capacity. **Potential production, for example, is targeted to rise 5-6% this year**—well above even the most optimistic demand projection. All in all, some 224,000 tons may be coming onstream this year—with additional 140,000 tons and 311,000 tons scheduled for 1991 and 1992, respectively.

PRICE OUTLOOK: Calling the tune in this volatile area has never been easy—and nervousness is likely to continue for another 3-6 months. But after that, it's hard to see how further erosion can be avoided. **The question, however, is how much of an additional decline.** Best bet: quotes in the 80-85¢/lb. range by next fall.



Chrome tags fall from oversupply

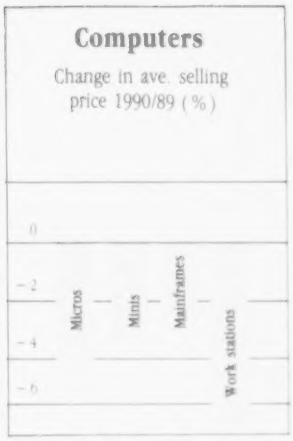
Prices have fallen—with one major overseas producer quoting only 56.5¢/lb.—down from the 65 - 68¢/lb. range of late last year. And the free market prices are a few cents lower than that. This continues a long fall that has halved the $1.10/lb. level prevailing as recently as 1988. Behind the easing: a big supply glut—one that is expected to persist as the market tries to absorb the 200,000 -300,000 tons of new capacity that came onstream in 1989. And a lot more new production potential is scheduled for 1990 and 1991.

Up: building-machinery costs

The near 5% average price increase of this past year won't be repeated as demand for construction machinery slowly begins to taper off. Best bet: a much more modest 3.5% advance. And even this may be on the high side as manufacturers begin to offer some big discounts to help dealers close sales. There are also reports of dealers again offering rebates to customers. Upshot: the real or transaction price increase may only be in the order of 2%.

Computer prices still falling

The downward price drift should continue because of improving productivity and somewhat slower demand gains. New Wharton Econometrics average selling price estimates for 1990: microcomputers ($2,480,



down 4.2%), minicomputers ($34,120, down 3.6%), mainframes ($599,100, down 3.2%), business/scientific workstations ($4,150, down 8.0%). And all of this is before adjusting for increased computing power. Also headed down are add-on memories (down 13.7%), and optical disks and mass storage (down 10.2%).

Buyers' market: fertilizer soft

Buyers should be calling most of the signals as markets remain glutted. Sign of the times: ammonia goes for only $86 - 88/ton on the Gulf coast—far under the $125 -128/ton range of a year ago. The situation is equally soft for oversupplied DAP and related phosphates. Prices here, too, have turned weaker—with a fall-off in exports expected to exacerbate the softness in the months and quarters immediately ahead.

Abrasives: cost, quality rise

Rising raw material tags could push prices up 4 -5% this year. But supplies seem

Continued on page 15...

Electronics sales lower

Electronic equipment markets should be taking a breather this year. Indeed, in the case of consumer products, sales totals could well edge a bit lower.

The new forecast, just released by Henderson Ventures, Los Altos, CA, projects an overall U.S. dollar gain of only 2.3%. That's less than half the estimated 1989 advance and even further below 1988's big 8.2% spurt.

The electronics consulting firm sees commercial product lines faring best—thanks to a 4.2% increase in communications equipment. The computer and office sector of the commercial market won't do all that badly, either, as dollar sales here move up another 3.9%.

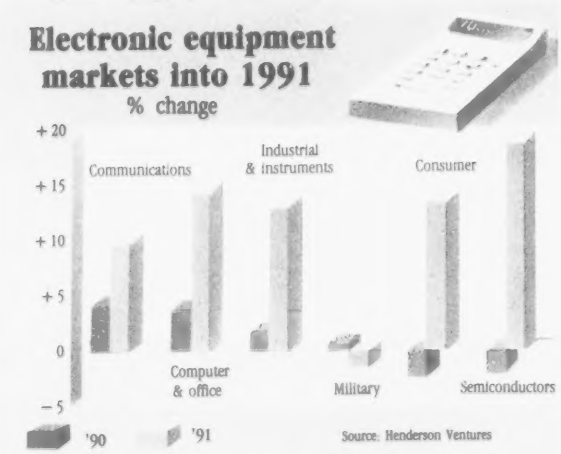
But this latter gain hides some important changes. Specifically, large, centrally controlled computers are being supplanted by decentralized personal computers and workstations. And although mainframes aren't dead, the growth prospects are not exciting.

Also look for major new products, as the much-delayed high-end Sequel disk drive from IBM hits volume production by midyear. IBM also plans to reintroduce its ill-fated workstation—in addition to announcing its new high-end Summit series computers late in the year.

Looking next at military equipment, only a 0.7% gain is seen, as defense cutbacks proliferate. And when it comes to consumer electronics, the sagging auto market should make for about a 2.6% decline.

The study also takes a look at semiconductors—and here, too, the near-term outlook calls for a small 2.2% decline. On the other hand, this has to be considered relatively moderate for this volatile area, as low inventories break the fall.

Henderson also takes a preliminary look at 1991, and here things look to be getting better again. Semiconductor sales should advance 19.3%, with similar gains seen for commercial electronic equipment (13.3%), and consumer products (13.9%).



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ample—and lead times should remain at current levels (or even narrow a bit). Also, buyers can expect continued improvement in quality as they push for and get vendor certification, more technical services, new premium products (such as ceramic aluminum oxides), and on-time deliveries. On the latter score, more suppliers will be establishing direct computer links with distributors to shorten the order-filling process.

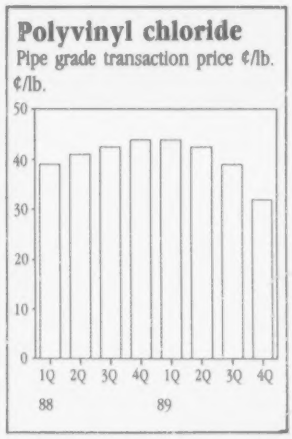
Steel showing price dips

Spotty price weakness is still the order of the day. In recent weeks wide flange beams have dropped $10-20/ton, merchant bars $25/ton, and 1200-series free-machining hot-rolled bars $30/ton. And steelmakers, given forecasts for an overall demand decline this year, are unlikely to propose price increases in this spring's annual negotiations with auto firms. All in all, average steel prices could be off about 2% for the year as a whole.

Weather flattens PVC prices

Prices are continuing to slide—as the bellwether pipe grade drops down as low as 30¢/lb.—off some 3¢/lb. from early fall levels and an even more impressive 14¢/lb. from year-ago readings. Behind the slippage: the severe early winter weather.

True, somewhat warmer temperatures have been reported in recent weeks, but this won't do much to buoy prices as 1) housing (the key end-user market) remains in the doldrums and 2) producer utilization rates move into the low 75% range this year.



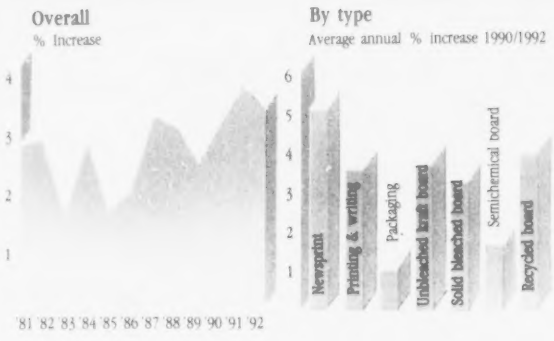
Coal settlement affects prices

Settlement of the long Pittston Coal Group strike could put modest downward pressure on prices. Best bet: about a $1/ton decline on good quality coking coal which sold in December for about $34/ton at the mine. The new pact will also take the pressure off of export tags as overseas buyers again press for reductions.

Truckers post rate hikes

Surging fuel costs (diesel fuel rose 25% in December) are prompting a rash of rate hikes generally running in the 6-8% range. Most of these are being posted by truckload carriers. Truckers that haul smaller shipments (so-called less-than-carload companies) have also raised their rates 5.5%—as part of a previously announced increase.

Paper: More capacity ahead



Paper supplies seem certain

Adequate or even more-than-adequate paper and paperboard supplies over the next few years seem all but certain—assuming producers follow through on big new capital investment plans.

As of now, the industry expects to add more than 8.6 million tons of new capacity over the next three years—the equivalent of a 3.4% average annual growth rate (see accompanying chart). The new figures, just released by the American Paper Institute (API), represent a substantial jump over the 2.4% average advance of the past decade.

An increase of this magnitude should be more than enough to meet demand—given the relatively slow growth GNP pattern now being projected for the economy. (Traditionally, paper demand has tended to track GNP gains with little or no variation.) Indeed, even with the recent wave of inventory paring completed, it's highly unlikely that paper production will advance by any significant percentage this year.

Couple the above with projected capacity increases—and operating rates could fall to their lowest level since 1985—something that should hold price rises (at least on an overall basis) to very modest proportions.

Not surprising, the econometric models are calling for only about a 2-3% rise in paper and allied products for 1990. That's less than half of this past year's 5.7% advance.

And even this doesn't tell the whole story. Linerboard prices may weaken as operating rates fall under the 95% level. Sign of the times here: spotty discounts now being reported in the east.

The industry's cost and profit structures also suggest that a period of relative softness wouldn't be catastrophic. On the cost front, for example, 4% productivity increases have allowed unit labor costs to actually decline in recent years. And on the profit score, the current 7¢/dollar of sales represents an historic high.

Construction materials stay restrained

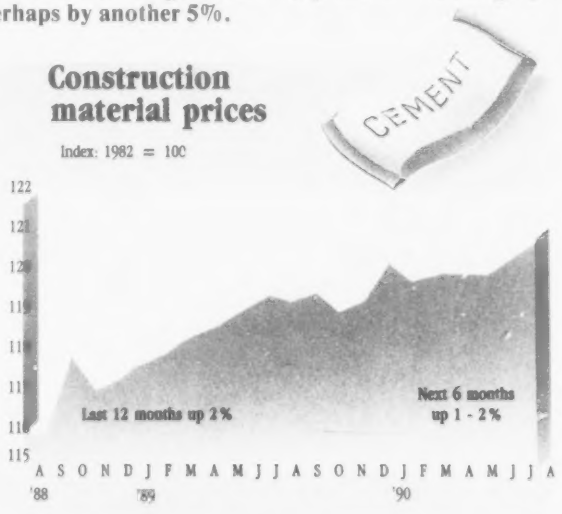
CURRENT SITUATION: Price increases remain in the restrained range, with overall averages up only about 2% over the past year. Some items have actually edged down, including reinforced concrete products (−2.9%), gypsum board (−2.7), and bituminous paving (−1.6%). Other basic products (like cement and asphalt roofing) have remained basically unchanged. **About the only items with sizable inflation rates are more highly fabricated lines** like plumbing fixtures (6.7%), heating equipment (5.0%), and lumber (2x4s—5.5%).

DEMAND: Another lackluster year looms as a slight recovery in the housing sector is offset by continuing weakness in commercial and industrial building. Thus structural metal products will be lucky to eke out even small gains. And there could be drops in some areas. Cement could be down about 3%, and lumber usage could be off a similar amount (to only 45.2 billion board feet).

SUPPLY: Availability is generally no problem, as demand continues to disappoint. **This is especially true for metal products**—particularly steel, where mill shipments are expected to be off a few million tons. Ample supplies are also seen for insulation materials, gypsum, paving and asphalt products, and plastic construction items.

PRICE OUTLOOK: Continued moderation is indicated—with the overall 1990 increase likely to be held to another 2% or so. But averages could be deceiving, for some areas like plastic construction products and structural steel could continue their 1989 declines. Also construction equipment price gains should slow due to sluggish demand and increased price shading and rebates. **But the timber shortage should keep lumber trending up—perhaps by another 5%.**

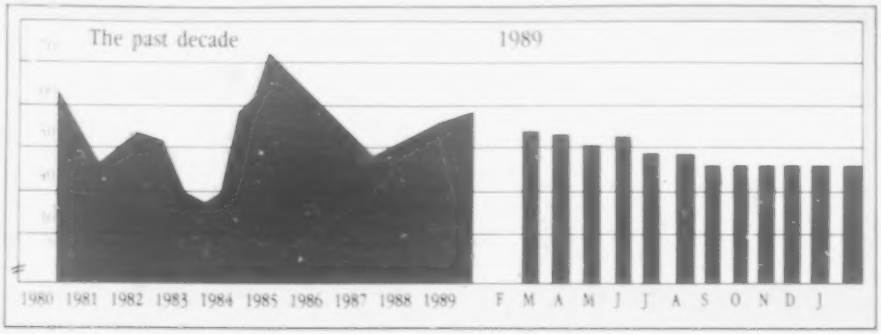
Construction material prices



BUSINESS DATATRAK

N.A.P.M. business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)



KEY ECONOMIC TRENDS

Economy's demise greatly exaggerated

The economy is not nearly as soft as some of the recent numbers coming out of Washington would seem to indicate.

For one, the recent lull can, in large part, be traced back to sagging auto sales after rebates ended last fall. In any case, there are already signs that new incentives—including possible price cuts—will again begin to whet consumer appetites.

Sign of the times: a new consumer survey shows 3.3% of queried respondents planning on a new car purchase over the next six months. While hardly earth-shaking, it's actually above the 3.2% reading of one month earlier.

Then, too, the negative one-shot effects of two major strikes, a hurricane, and an earthquake will soon be little more than an unpleasant memory. Other signs suggesting that the now eight-year upturn still has a way to go, should include relatively low inventories and a gradual credit ease.

And don't forget exports. Another gain is seen for 1990—though the contribution to GNP gain will be far less than the 30% figure of 1988 - 89.

All of this can probably be best summed up by the NAPM barometer shown above. The latest reading has inched up to 48.0 (*versus* 46.6 a month earlier).

Taking off on this, Bob Bretz, who masterminds the NAPM survey, says that the current reading is consistent with a continuing GNP growth to near 44 before the economy slips.

Positive signs can also be gleaned from some of the seemingly bearish individual sector barometers. Thus, while machine tool orders are low, they finally seem to be leveling off (see chart).

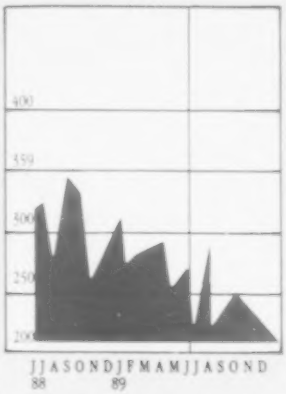
In any case, tool makers are looking ahead with guarded optimism. For one, there has been no rash of order cancellations indicating that companies are suddenly curtailing factory modernization and expansion. Then too, the industry is counting on competitive pressures from overseas producers to force more spending by U.S. firms.

Housing (see chart) is another area that might be ready to bottom out. The latest trend in permits (a forerunner of actual starts) would certainly seem to indicate as much.

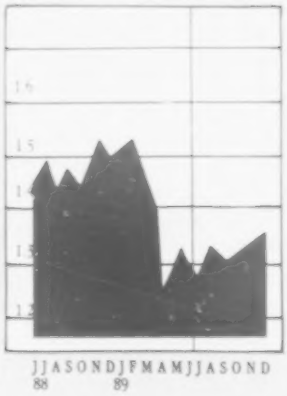
Also supporting the belief that the worst is over in housing are 1) the recent pickup in sales of new homes and 2) the slow decline in mortgage rates. Upshot: by the third quarter of the year, starts should again be approaching the 1.40 million unit annual rate—a fair-sized

Leading indicators

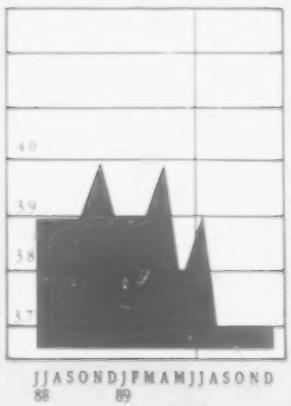
Machine tool orders



Housing permits



Factory overtime



improvement over the 1.32 million level prevailing in late 1989.

Employment statistics aren't all that bad, either. True, overtime is down from last year (see chart). But the drop has not been precipitous—indicating that manufacturers are not about to throw in the towel.

Then, too, unemployment rates are not expected to rise very much. by the third quarter, for example, they could inch up to, say, 5.6%. That's not all that much above the 5.3% rate of the past few months.

This, in turn, should ease the fears of consumers. In fact, real consumption outlays this year are expected to rise by a respectable 2.5%—about the same amount estimated for the year just ended.

Fleet cars toe price line

Fleet car administrators are betting that they can hold the price line on 1990-model acquisitions.

A new survey by the National Association of Fleet Administrators (NAFA) suggests the average passenger car will cost them $12,854. That's up only a minuscule 0.4% from last year's typical tab—and far less than indicated by new show-room sticker prices.

Other key findings of the study which involves 123,000 U.S. and Canadian vehicles:

- **Car-van truck mix:** Passenger vehicles will account for only 63% of total units acquired (down substantially from last year's 73% figure). Bigger portions will go for vans (20% *versus* 13% last year) and light-duty trucks (17% *versus* 14% in 1989).
- **Domestic-import mix:** Overseas models come to only 1%—compared to General Motors (39%), Ford (31%), and Chrysler (29%).
- **Buy versus lease:** For 1990, some 6% of the fleets who previously purchased now plan to switch to leasing—while only 3% will go the other way (from lease to buy).
- **Car size:** Most of the 5% of respondents who plan on changes say they will move up to mid-size vehicles from compacts—the opposite of last year's trend.
- **Buying determinants:** Initial cost is most important—followed by suitability for job, repair record, economy of operation, and depreciation/resale value.

One big plus for automakers: overall unit volume will be going up—despite the general business slowdown. Specifically, the 20% who plan to increase the number of vehicles in their fleets is more than three times the small 6% who plan on some retrenchment.

CURRENT PRICES

Little industrial price change

Industrial prices are still basically marking time.

To be sure, there have been some recent gyrations—particularly in the volatile energy sphere. Specifically, a record-cold December made for some big hikes which are only now beginning to fall back to normal. Biggest up and down moves have been recorded in home heating and diesel fuel.

Elsewhere in the energy sector, coking coal could be in for some modest declines following settlement of the big Pittston strike. Natural gas and electric power, however, remain relatively stable.

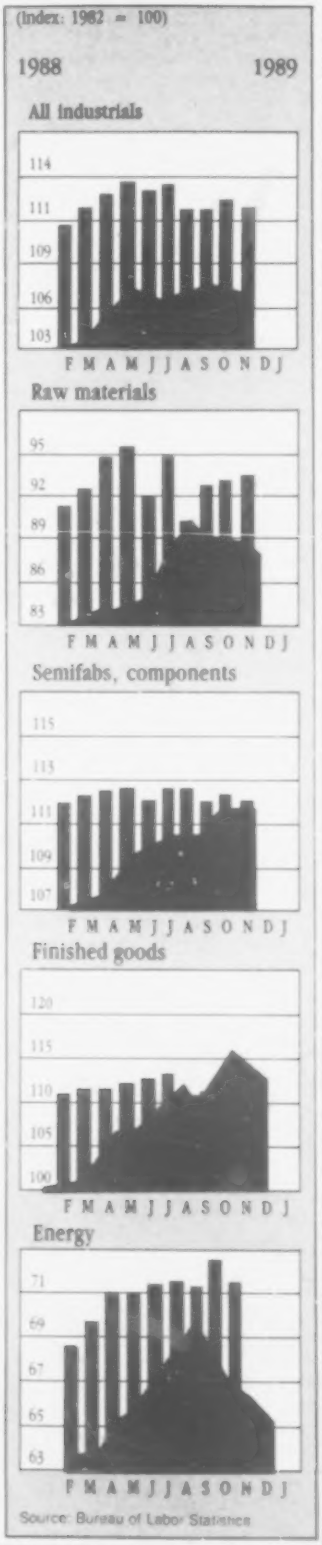
More important, the prognosis is for this mostly flat overall price pattern to persist—as the world remains afloat in a sea of oil. In any case, most signs suggest that imported crude oil will remain in the $17-18/barrel range—thereby helping to keep a lid on any big new energy price advances.

The organic chemical area also continues relatively soft, but this is being offset by some modest strength in inorganics which, at latest report, were running 7% ahead of year-ago levels.

A similar mixed picture is noted for plastic resins. Polyethylene has firmed fractionally following the recent explosion at a key production facility. But this is being offset by persistent easiness (though with only very modest additional price attrition) in polypropylene, polystyrene, polyvinyl chloride, and ARS resins.

A much more across-the-board easiness is noted in most metals. True, the change in the steel mill product price index has been minimal. But this is because the considerable

Industrial prices



discounting now going on in this area is seldom picked up in Uncle Sam's list-oriented steel price index.

The same underlying softness is also apparent in most nonferrous metals. Thus, copper, aluminum, and zinc have all been falling—and are now well under month-earlier levels. Only lead, among the major nonferrous metals, seems to be bucking the trend—as recent cold weather firms up battery demand.

Also encouraging are the relatively small increases noted for capital equipment, which, in recent months, has been increasing at a restrained 2-3% annual rate. And this pattern is likely to continue—judging from a new plant and equipment forecast which suggests that these tags will rise by less than 2% over the current year.

Factor in offsets

Don't forget to factor in productivity offsets when evaluating supplier requests for new wage-push price hikes. A 4% pay hike, for example, could easily be wiped out by a similar gain in worker efficiency.

What actual productivity percentage to use then? A lot, of course, depends on the industry in question. Some—like steel—have staged substantial gains in recent years, with the average increase here put at 5.2% annually over the past decade (see accompanying table).

Actually a combination of factors are behind these big steel gains. They include a massive restructuring and modernization program, the shutting of older, inefficient mini-mills, and the widespread diffusion of advanced technology such as continuous casting.

Other industries with significant productivity recoveries over the past decade: primary copper (from 3.8% in the 1970s to 12.9% in the '80s), carburetors and pistons (from −3.9% to 2.9%), alkalies and chlorine (from 0.9% to 7.3%), and inorganic pigments (from −1.4% to 4.6%).

But not all sectors have improved. Machine tools have done little more than mark time over the past 10 years. And a handful of industries have actually continued to report negative productivity gains (including industrial inorganic chemicals, steel foundries, fabricated pipe and fittings, and transformers.

A word of caution, however, on these figures. They can vary significantly from year to year due to cyclical factors—with a poor demand year tending to lower efficiency and vice versa.

Best bet then: use the data for gauging only long-term price pressures—not short-term ones. Also don't blindly accept a big price boost just because the past year happened to show poor productivity gains. The drop could well turn out to be temporary.

Productivity trends over the past year

	Average annual
Lumber mill work	0.3
Metal office furniture	2.8
Paper & paperboard mills	3.4
Corrugated boxes	1.7
Industrial organic chemicals	−0.5
Synthetic fibers	3.5
Paints	3.1
Tires & tubes	5.2
Glass containers	4.6
Steel	5.2
Steel foundries	−0.7
Primary copper	12.9
Primary aluminum	3.4
Metal cans	3.7
Metal stampings	1.5
Valves & pipe fittings	0.6
Machine tools	−0.2
Mining machinery	1.6
Pumps & compressors	1.4
Bearings	0.1
Carburators & pistons	2.9
Transformers	−0.6
Motors & generators	1.9
Electric lamps	4.1
Semiconductors	8.2
Motor vehicles	3.5

Buyers keep cards close

Buyers are playing their procurement cards close to the vest—in part because of business uncertainties and in part because most products are available for the asking.

The latest National Association of Purchasing Management (NAPM) Business Survey Committee Report, for example, finds 57% of the respondents are committing for production materials 30 days or less in advance. That's up from 53% the previous month. And at the other end of the spectrum, only 3% now buy these items six months or more in advance (*versus* 5% a month earlier).

A similar picture is noted on maintenance, repair and operating (MRO) items. Specificaliy, 90% now buy within 30 days, *versus* 85% some 30 days earlier. That's the biggest number here since May, 1986.

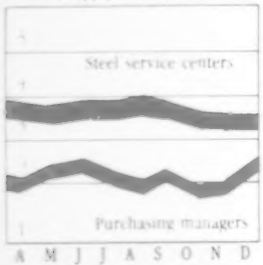
Also indicative that buyers are in the driver's seat: more people reported faster rather than slower vendor deliveries for the eighth straight month. Upshot: the NAPM vendor delivery index (where any reading under 50 represents a speedup) is now at its lowest level in nearly eight years.

As might be expected, all the above is resulting in continuing inventory retrenchment. That's been the case for 12 straight months now. True, the paring seems to be less across-the-board now, but that's probably because more and more PMs are

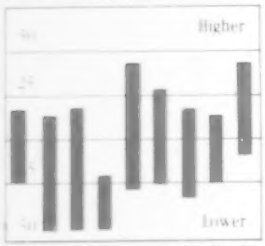
Steel

Operating rates

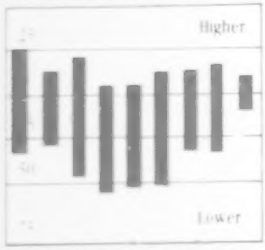
Inventories
(Months supply on hand)



Demand (STEEL SERVICE CENTERS)
(Percent of respondents)



Demand (STEEL BUYERS)



Source: Steel Service Center Institute
NAPM Steel Buyers Committee

approaching rock-bottom stock levels.

Still one more positive sign: the NAPM price index (again with 50 as a neutral point) dropped to 41.9—the lowest figure in nearly five years. Commenting on this, NAPM committee chairman Bob Bretz sees this as an extremely favorable sign—adding that the items reported as being lower in price (27) is virtually double the 14 that are still in rising trend.

That's not to say, of course, that there aren't some problems. Witness the fact that the NAPM short-supply list has increased to 13 items—from 10 last month.

But this should soon be reversed. Thus, more than half the items on the list should be coming off by late spring and summer, as demand gains decelerate and new capacity continues to come onstream. For all manufacturing this increased production potential is now put at near 3% a year.

STEEL SCENE

Steel demand could improve

Near-term steel demand may be in for a modest improvement.

One sign to this effect: some 13% of buyers responding to the latest NAPM Steel survey expect to increase their purchases of the metal over the next three months. To be sure, that's similar to another 13% who feel further declines may be in order. But it's the first time since last March that negative estimates have not predominated.

The picture seems even brighter on the service center front. Specifically, 41% of distributors responding to the latest Steel Service Center Institute (SSCI) survey think that their incoming orders will increase over the next three months. That's well above the 15% who feel declines may be ahead. More important, it reverses the declining trend suggested over each of the preceding three months.

Talks with SSCI executives also reveal a more upbeat attitude. While no one is ready to climb out on a limb and predict shipment gains for 1990, most are now hopeful they can maintain a relatively flat pattern. That's a more optimistic forecast than these same distributors were making as recently as last fall.

SSCI president, Andrew G. Sharkey, is also positive on his group's inventory situation. As he puts it: "Inventory levels are virtually flat. Very little month-to-month movement in inventory levels within product categories is being experienced. Stainless, alloy, and carbon bar products are at healthy levels, particularly compared to the high levels established in the first half of 1989."

Service center responses would certainly seem to back this up. Thus the latest SSCI stock level is put at a 3.35 month's supply—about 4% under the high point of late last summer.

And judging from distributors, they want to bring their holdings down even further. An impressive 59% of respondents say their stocks are too high relative to current shipments. Contrast that to the only 2% who feel they're too low.

Steel buyers are generally of the same opinion when it comes to inventories. As of now, their holdings come to only a two month supply. And again, the goal is to bring them down further—with 57% contemplating decreases over the next six months (*versus* only 4% looking for an increase).

This likely falloff in user inventories is further confirmed by a new Wharton Econometrics report. It shows steel stocks dropping 0.8 million tons in 1990, on top of the 2.6 million ton reduction estimated for the year now ended.

Part of this inventory retrenchment is, of course, due to business uncertainties. But an equally important role may be traceable to ready availability and speedy deliveries. Indeed, the only product line mentioned by more than one buyer as possibly being tight in early 1990 is coated sheet.

Import prices
(compared to domestic)

Steel buyers
ABOVE 48%
SAME 30%
SLIGHTLY BELOW 22%
SUBSTANTIALLY BELOW 0%
SERVICE CENTERS (carbon)
ABOVE 4%
SAME 76%
5-10% BELOW 20%
10-20% BELOW 0%
OVER 20% BELOW 0%

Put another way, four out of five steel buyers are anticipating a problem-free next six months—a big improvement over last March when only one out of three were this optimistic.

Still another factor behind inventory restraint could be expectations of lower prices in the months and quarters immediately ahead. Some 42% of those responding to the SSCI survey, for example, expect lower replacement costs over the next six months. Lending credence to this projection: This 40%-plus response has been holding steady for four straight months.

Steel spokesmen say they are basing this soft price projection on expectations of a sizable four million ton drop in domestic shipments. This, in turn, will bring down overall industry operating rates to near 80%—low enough to insure continued discounting in many product lines.

This month's breakdown

Index: 1982 = 100

	Latest level (Nov.)	% change from: Month ago	Year ago
Bearings	125.7	0.2	5.0
Bolts, nuts, etc.	114.5	0	6.0
Chemicals, inorganic	111.0	0.5	7.0
Chemicals, organic	101.5	−0.6	−3.4
Concrete products	144.1	0.2	1.4
Corrugated cartons	116.7	0.3	1.1
Cutting tools, small	112.4	0.6	4.1
Electric lamps (bulbs)	99.6	−0.3	2.8
Electronic components	118.9	0.2	1.2
Fans and blowers	124.4	0.1	5.4
Foundry and forge products	115.1	0.1	3.6
Fuel oil (residual)	49.2	2.1	34.8
Furniture, commercial	140.4	0.3	3.6
Gasoline	82.1	−4.9	5.8
Glass, flat	108.6	−0.4	−1.5
Glass containers	115.9	0	3.2
Gypsum products	110.4	0.6	−3.2
Hand tools	129.5	0	5.6
Hand tools, power driven	117.6	0.5	4.0
Industrial furnaces	125.3	0.1	2.9
Integrating and measuring instruments	122.9	0.6	6.5
Internal combustion engines	116.5	0.1	3.7
Lubricating oil	113.7	−1.2	4.0
Lumber millwork	128.3	0.2	4.4
Material handling equipment	113.2	0.2	3.9
Metal containers	112.6	−1.9	1.6
Metal mill shapes (nonferrous)	134.4	−1.7	3.4
Metal tanks	111.8	0	4.6
Motors and generators	130.0	0.1	4.3
Motor trucks	134.1	−1.5	2.9
Office and store equipment	110.2	0.6	1.9
Paperboard	139.7	−0.2	2.3
Paper boxes and shipping containers	131.2	0.2	4.0
Paper office supplies	121.7	−0.2	2.7
Paint	121.4	0.7	6.1
Plastic resins	127.4	0.4	9.1
Precision measuring tools	125.3	0	2.9
Pumps and compressors	116.3	−0.1	4.7
Refractories	120.0	−0.1	4.2
Rubber belts and belting	123.8	4.9	14.2
Scales and balances	107.4	0.7	0.7
Steel products	114.4	−0.1	1.6
Switchgear	119.7	0.3	4.6
Textiles, synthetic fibers	107.3	0.6	7.9
Textiles, gray fabrics	116.4	0.3	1.7
Tires and tubes	97.2	−0.1	2.7
Transformers and power regulators	118.7	−0.3	8.2
Welding equipment	123.9	1.1	4.2
Wire and cable	146.5	−1.7	4.0

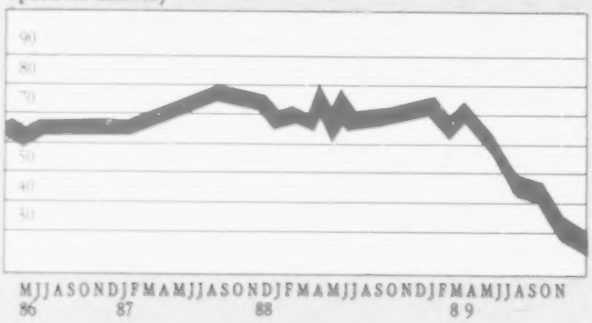
NAPM procurement trends

(seasonally adjusted diffusion indexes)

An index where 50 is defined as the neutral level, to the extent a reading is above 50, it represents an expansionary tendency. More particularly, rising inventory prices, and new orders are seen as positive signs of economic growth. A trend toward slower deliveries is similarly interpreted.

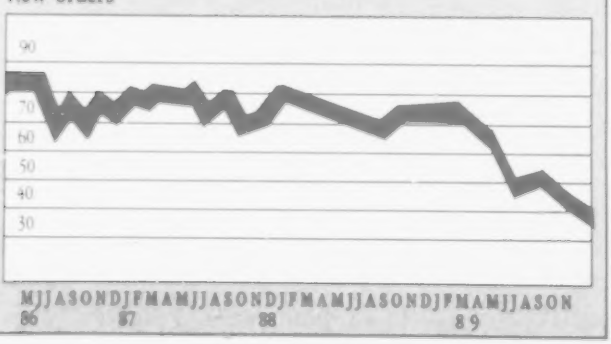
Inventories

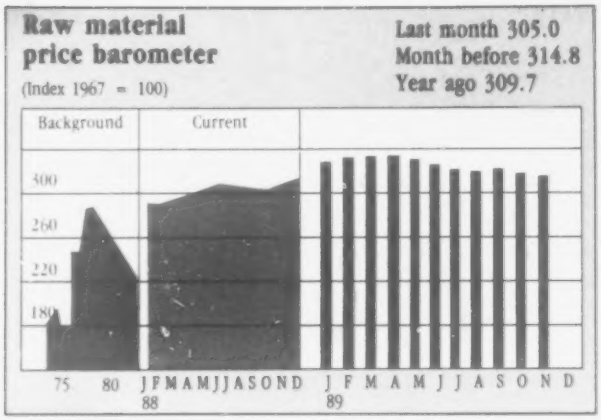
Speed of delivery



Prices

New orders





Latest spot market prices

	Latest price	Previous month	Year ago
FERROUS METALS			
Pig iron, basic, valley, gross ton	213.00	213.00	213.00
Pig iron, Bessemer, Pitts., gross ton	213.00	213.00	213.00
Steel, billets, Pitts., net ton	367.00	367.00	367.00
Steel, structural shapes, Pitts., cwt.	23.90	23.90	23.90
Steel, structural shapes, Chi., cwt.	23.90	23.90	23.90
Steel, structural shapes, Los Angeles, cwt.	23.90	23.90	23.90
Steel, bars, dlvd. Phila., cwt., merchant quality	18.70	18.70	16.50
Steel, bars, Pitts., cwt.	18.70	18.70	16.50
Steel, bars, C.R., Pitts., cwt.	23.95	23.95	19.45
Steel, plates, Pitts., cwt.	23.25	23.25	23.25
Steel, plates, H.R., Pitts., cwt.	23.25	23.25	23.25
Steel, sheets, C.R., Detroit, cwt.	29.65	29.65	28.15
Steel, strip, C.R., Chi., cwt.	36.18	36.18	36.18
Steel, basic wire, Pitts., cwt.	23.65	23.65	23.65
NONFERROUS METALS			
Aluminum, ingot, lb. (market place)	.735	.760	1.130
Antimony, N.Y., dealer, lb.	.81	.81	.98
Beryllium-copper, cost ingot, lb.	5.90	5.90	5.90
Brass, red, 85%, [sheet], lb.	1.73	1.78	2.13
Brass, yellow, [sheet], lb.	1.69	1.74	2.09
Cadmium, N.Y., dealer, lb.	5.25	5.15	8.45
Copper, electrolytic, wire bars, refd., lb.	1.10	1.15	1.50
Copper sheet, over 24 in., lb.	1.82	1.87	2.22
Lead, common, N.Y., lb.	.38	.41	.40
Magnesium, pig ingot, [99.8%], lb.	1.63	1.63	1.63
Mercury, 20 fl. lots, N.Y., fl.	290.00	290.00	280.00
Molybdenum, oxide, dealer, lb.	2.54	2.51	3.46
Nickel, cathode, dealer, lb.	3.80	4.10	8.40
Platinum, dealer, oz.	495.00	504.00	520.00
Silver, N.Y., oz.	5.70	5.32	6.18
Tin, N.Y., dealer, lb.	3.22	3.08	3.44
Zinc, Prime West, East St. Louis, lb.	.68	.73	.80
Zinc, die casting alloy, No. 3, lb.	.760	.810	.865
PAPER			
Uncoated book #3 offset, ton	940.00	940.00	965.00
Watermarked bond, ton	1095.00	1095.00	1080.00
Gummed sealing tape, carton	19.10	18.87	17.88
Grocery sacks, ton	495.00	495.00	460.00
Solid bleached paperboard, ton	835.00	835.00	730.00
Kraft linerboard, 42 lb., unbleached, ton	410.00	410.00	440.00
TEXTILES			
Burlap, 10 oz., 40", N.Y., yd.	.282	.282	.280
Cotton drill, 1.85, 59", 68x49, N.Y., yd.	1.24	1.24	1.18
Cotton middling, 1", N.Y., lb.	.611	.614	.537
Printcloth, 48", 80x80, N.Y., spot, yd.	.50	.50	.50
Army duck, 37", 13 oz., yd.	1.40	1.40	1.50
Blended printcloth, 64", 78x54, yd.	.80	.76	.70
20s combed yarns	1.94	1.94	1.80
Wool 64s, Staple, lb.	3.00	3.50	4.50

	Latest price	Previous month	Year ago
CHEMICALS			
Acrylonitrile, tanks, lb.	.42	.42	.36
Ammonia, anhydrous, tankcars, Gulf Coast, ton	86.00	88.00	125.00
Benzene, petroleum, tanks, Houston, gal.	1.35	1.51	1.85
Caustic soda, 76% solid, drums, carlots, cwt.	28.00	28.00	28.00
Cresylic acid [over 25%], tanks, lb.	.55	.55	.55
Formaldehyde, USP, 37%, [12% to 15% meth.], tanks, lb.	.106	.106	.106
Glycerine, synthetic, tanks, lb.	.845	.845	.760
Methanol, syn., tanks, 4,000 gals., f.o.b. Gulf Coast plants	.32	.32	.60
Naphthalene, crude, tanks, lb.	.16	.16	.16
Phthalic anhydride, tanks, lb.	.33	.40	.41
Polyethylene resin, low density liner film grade (market place), lb.	.360	.350	.515
Polypropylene, homopolymer grade (market price), lb.	.365	.365	.495
Polystyrene, general purpose grade (market price), lb.	.465	.475	.590
Polyvinyl chloride, pipe grade (market price), lb.	.305	.315	.440
Soda ash, 58%, light carlots, cwt.	6.15	6.15	6.15
Styrene monomer, 99.6%, tanks, lb.	.35	.35	.50
Sulfur, crude, ex-terminal, Tampa, Fla., lt.	123.00	117.50	142.00
Sulfuric acid, 66%, commercial, tanks, ton	69.89	69.89	66.86
Titanium dioxide, anatase, reg., carlots lb.	1.02	1.02	.95
Xylene, Gulf Coast, spot, barge, gal.	.78	N.A.	N.A.
BUILDING MATERIALS			
Lumber, 2x4 fir, mbf, cl	336.56	344.67	328.39
Lumber 2x2 pine, mbf, cl	330.68	334.14	321.41
Plywood, plyform, ¾", msf, cl	617.67	617.67	547.94
Plywood, ⅜", msf, cl	434.33	434.33	375.20
Cement, bulk, ton, tl	62.56	62.71	63.71
Sand, ton, cl	7.03	7.03	7.23
Ready-mix concrete, 3,000 psi/cu. yd.,	47.60	47.37	48.77
Crushed stone, 1½", ton, cl	N.A.	N.A.	N.A.
Concrete blocks, sand/gravel, 8"x8"x16", per hundred	90.09	89.78	86.72
Reinforcing bars, whse base, per cwt	22.08	22.08	20.85
Asphalt paving AC-20	104.22	103.17	105.44
Vitr. Clay Sewer Pipe, Prem Joint, 12", per ft, cl	N.A.	N.A.	N.A.
Concrete sewer pipe, 24", prem. joint, per foot, cl	17.90	17.67	N.A.
FUELS			
Crude oil (W. Tex Int Cush), bbl.	23.40	20.25	17.40
Diesel (reseller rack, Chi), gal.	1.132	.6025	.5920
Fuel oil No. 2 (N.Y.), gal.	.9650	.6485	.5485
Fuel oil No. 2 (Gulf spot), gal.	.8160	.5945	.5300
Fuel oil No. 6 (N.Y.) contract cargo, bbl.	26.75	21.75	20.00
Gasoline (prem unlded NY), gal.	.7550	.5860	.5075
Gasoline (reg unlded NY), gal.	.6735	.5355	.4825
Kerosene (reseller rack, Chi), gal.	.9550	.6875	.6075
Propane (Mt. Belvieu, Tex), gal.	.5500	.2375	.2238
SCRAP MATERIALS			
Steel, No. 1, hvy., dlvd., Pitts., ton	95.00	92.00	115.00
Steel, No. 1 hvy., dlvd., Chi., ton	104.00	94.00	114.00
Copper, No. 1, East, wholesale buy, dlvd., lb.	1.00	.99	1.10
Copper, No. 2, East, wholesale buy, dlvd., lb.	.930	.920	.985
Brass, red, East, wholesale buy, dlvd., lb.	.960	.950	1.060
Brass, yellow, East, wholesale buy, dlvd., lb.	.570	.590	.540
Alum., old sheet/cast, E., wholesale buy, dlvd., lb.	.425	.440	.660
Alum., mixed clip., E., wholesale buy, dlvd., lb.	.500	.510	.760
Zinc, old, East, wholesale buy, dlvd., lb.	.30	.30	.24
Lead, clean solids, East, wholesale buy, dlvd., lb.	.23	.24	.28
Paper, No. 1 mixed, dlr., N.Y., ton	Nom.	Nom.	Nom.
Paper, old corrug. box, dlr., Chi., ton	Nom.	5.00	10.00
Paper, old corrug. box, dlr., N.Y., ton	Nom.	Nom.	Nom.
Old newspapers, Chi., ton	20.00	Nom.	Nom.
Old white ledger, Chi., ton	75.00	110.00	85.00

[Sources: Metals Week, American Metal Market, Engineering News-Record (20-city averages), The Wall Street Journal, Journal of Commerce, Chemical Marketing Reporter.]

NAPM projects small price advances

Figure on only minimal price advances this year.

So say the 300 or so top purchasing executives responding to a recent National Association of Purchasing Management Business Survey Committee poll. In a nutshell, these industrial buyers are talking in terms of only a 0.7% increase through May—and a not much higher 1.6% boost for the year as a whole.

It's hard to find a rosier projection than that. For one, the projected advance is considerably under what most analysts have been forecasting. More important, it's a lot less than the 2.6% average boost these same PMs experienced in the year just ended.

Other survey signs of a still-improving price picture: only 12% of the queried buyers expect across-the-board price increases over the next few quarters (*versus* 28% a year earlier when the same question was asked about early 1989). Equally significant, some 34% think the increases will be slight—more than double the 14% who felt that way a year ago.

Robert J. Bretz, Pitney Bowes' director of materials management, who heads up the NAPM group, attributes the new projections to two key factors—a somewhat less ebullient demand pattern and increasing availability. On the latter score, he cites another finding of the survey which suggests that today's average capacity utilization rate has dropped to near 85%—compared to 88.5% a year ago and 87.4% some six months ago.

And new capacity is likely to continue coming onstream. Thus capital spending in the new year is expected to increase 7.2%—not that much under last year's estimated 7.9% advance.

Two other hopeful signs as far as containing price increases are concerned: very modest labor-plus-fringe-benefits costs and a relatively strong dollar.

On the labor front, buyers figure the average outlay will be rising by only about 3.6% over the new year. Also keep in mind this is an overall figure and does not take into account productivity gains. Factor in this efficiency offset, and the resulting unit labor cost increase will probably be at least a percentage point under the nominal figure.

As for the dollar, purchasing executives who import figure our currency will actually be stronger *vis a vis* the Canadian dollar, the British pound, the Italian lira, and the French franc. And expectations are that we should hold our own against the German mark and the Japanese yen.

Points to keep in mind here: this kind of dollar performance, other things being equal, should keep a lid on import prices, thus further enforcing the current competitive industrial buying climate.

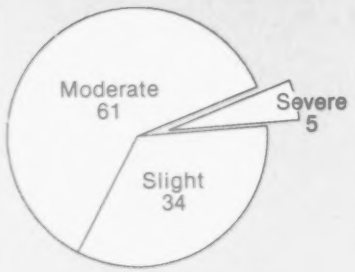
The growing role of imports, incidentally, is also pointed up by the fact that PMs expect continuing gains in their overseas purchases—despite a slower economy. Specifically, 28% of those queried see an increase in their import volume over the first half of 1990—significantly more than the 17% who plan on cutbacks.

Given all the above, it's not surprising that inflation is rather low on the PM list of worries. Concerns about prices, for example, are mentioned by only 8% of surveyed buyers. Contrast that to a year ago, when inflation was their number one worry (cited by 22% of these same purchasing pros).

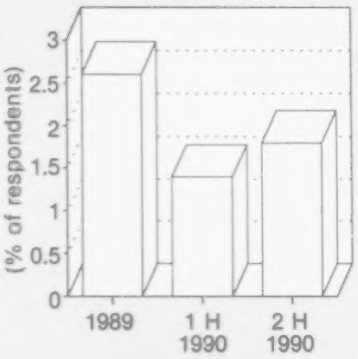
The new NAPM report also provides some documentation as to the overall demand deceleration anticipated. All in all, industrial buyers pit the average current dollar increase in overall business at only 5%.

Inflation: the NAPM view

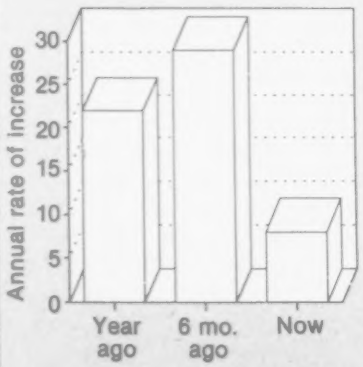
Severity of change



Numerical change

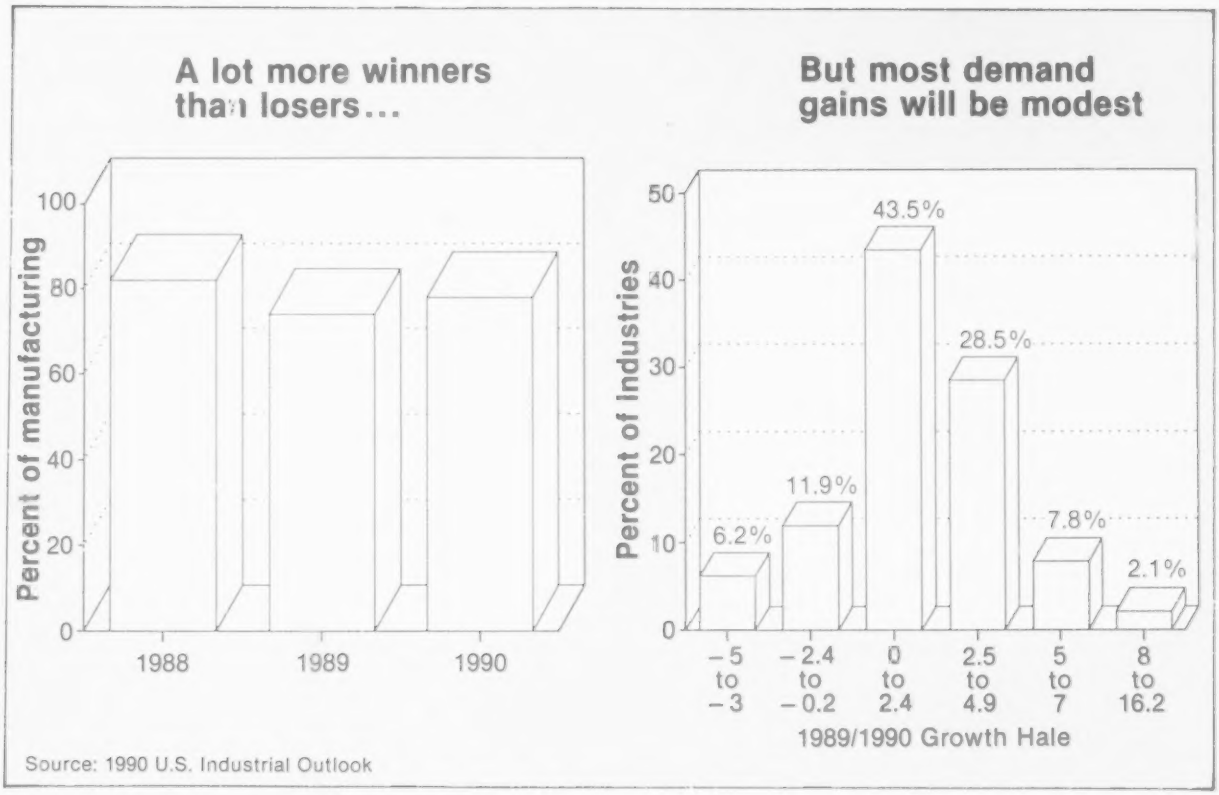


PM concern



An industry-by-industry appraisal

1990: Another year of growth



Source: 1990 U.S. Industrial Outlook

The majority of U.S. industrial firms can look forward to an eighth straight year of business growth. Specifically, of some 193 manufacturing industries surveyed, an impressive 150 (78% of the total) are expected to post real demand gains in 1990.

The details, contained in the Commerce Department's new *1990 U.S. Industrial Outlook,* suggest the biggest gains will again be in high-tech and health-related areas. Examples (in real or in inflation-adjusted shipment terms): medical and dental equipment (8.2%), computers (4.3%), measuring and controlling devices (4.2%), and aerospace (3.5%).

All these are well in excess of the overall 2% average growth increase expected. On the other hand, there will be a few laggards—most notably the auto, steel, and construction material sectors.

The new report doesn't give any specific price projections, but for some industries both current and constant dollar shipment forecasts are provided. And by comparing the two series, it is possible to come up with some rough unit price estimates.

These projections, shown in the table accompanying this article, suggest relatively modest upward pressures. No industry, for example, is expected to sport a unit price advance in excess of 5%. And in some instances (medical equipment, plastic bottles, and crude oil), actual declines are deemed likely.

The new report is also moderately bullish on exports—though gains are expected to lag those of the past few years. In any case, continuing good increases are seen in such industries as medical and scientific equipment, commercial aircraft, machine tools, and papermaking machinery.

All in all, export growth is put at 3.9% for the new year. But because imports are projected to grow by an almost-as-impressive 3.7%, the trade deficit in real terms will show only a small decline, dropping $2-5 billion from 1989's estimated $108 billion red ink figure.

Below are thumbnail sketches of what Uncle Sam's analysts see ahead for the year in some of the nation's key industries. All are culled from this 500-page study available for $27 from the U.S. Government Printing Office or any of the 23 Commerce Department's regional bookstores.

• **Construction materials:** Real demand should be slightly lower than

in 1989 (off 0.6% to be exact), but not much below the cyclical peak reached in 1986-87. Reason: construction put in place this year will fall about 1% after adjustment for inflation. Some of the specific real demand changes anticipated: cement (0.4%), concrete blocks (0.2%), ready-mixed concrete (0.7%), flat glass (-4.9%), brick (0.3%), gypsum products (0.5%), fabricated structural metal (-3.8%).

• **Energy:** Overall usage will rise 1.7%. Best showing is seen for nuclear power (up 5.3%). Natural gas will be at the average (1.7%). But refined petroleum products will lag—advancing only 0.9%. And since this is part of a longterm trend, the industry is not expected to opt for more than marginal increases in refinery capacity.

• **Chemicals:** Demand should follow the general economic trend—advancing only 1.7% in real terms this year. Breaking this out, shipments of petrochemicals will grow at around a 1.8% rate—only about one-third the 1989 gain. Organics should increase around 2.4%, while inorganics will remain where they are. One important trend: the growing shift from low-unit-price, high-volume chemicals to high-unit-price specialty chemicals.

• **Steel:** Shipments should drop about 4% in real terms this year (to 78 million tons), the lowest level since 1987, but well above the depressed volume of the 1982-86 period. Behind the slippage: weakness in autos and nonresidential construction, plus a reduction in inventories. Another trend worth noting: growing foreign investment. By 1989 overseas steel makers (mostly from Japan) owned almost 25% of domestic integrated mill facilities.

• **Aluminum:** U.S. shipments will increase less than 1% this year (to about 7.71 million metric tons or 17 billion pounds). The sluggish trend is due to weak demand in the transportation and building/construction sectors. Also the growth in exports will moderate—putting additional downward pressure on shipments. Containers and packaging will remain the dominant end-use sector. Longer term, domestic shipments are expected to increase at about a 2% annual rate through 1994.

• **Copper:** U.S. use will be flat to slightly lower because of near-zero growth in construction and electrical and electronic products—and because of projected decreases in transportation equipment output. But stronger overseas markets still suggest a global demand gain of near 2%. On the supply side, U.S. and overseas output will each increase by about 5%—something that suggests better balance and even a small surplus if big work stoppages can be avoided.

• **Nickel:** World-class mine output will increase about 4% (to 1,005,500 tons), while plant production will advance 5% (to 965,000 tons). On the other hand, U.S. demand could fall nearly 4%. Upshot: increasing excess capacity which should exert continuing downward pressure on primary nickel prices.

"These projections suggest relatively modest upward pressures."

• **Zinc:** U.S. demand will fall fractionally (to 1,085,000 metric tons) because of a projected dip in transportation usage and flat growth in commercial and nonresidential construction. Galvanized products will be the only end-use market to experience any growth this year, thanks to more intensive use in autos. Longer term, look for the zinc industry to grow about 1.3% a year into the mid-1990s.

• **Lead;** consumption should decrease about 0.4% (to 1,220,000 metric tons). One reason: a near 2% fall in production of original equipment batteries—more than enough to offset only about a 1% rise in replacement battery shipments. Longterm growth isn't likely to impress, either—with only about a 1%/year advance seen over the next few years.

• **Nonferrous castings:** Real shipments are likely to fall 2.3% this year. Demand for cast copper valves and fittings should roughly equal 1989 levels, but shipments of aluminum and zinc castings will decline in response to lower auto production. Capacity utilization will range from 50-75%—with aluminum and zinc foundries at the high end, and copper, brass, and bronze foundries at the low end.

• **Ferrous castings:** Real shipments should decrease about 3%—primarily because of falling auto and truck production. Steel castings, however, should increase because of strong demand for railroad castings. The industry-wide trend away from malleable iron castings will continue. On a more bullish note: the industry should retain most of the business it recaptured from foreign competitors in the late 1980s.

• **Containers:** Environmental concerns will limit plastic bottle increases to 3.6%. Even so, this should surpass the smaller gains anticipated for glass (0.8%) and metal cans (3.1%). Unit prices should drop about 2% in the plastic area because of lower resin costs. But glass tags will be up 1.2%, with metal cans up by as much as 5% on a unit basis because of still-improving demand and continued rationalization of production capacity.

• **Paper:** Planned capacity additions in newsprint and in coated and uncoated printing papers will outpace growth in demand—thereby reducing capacity utilization rates. All in all, paper demand will rise only 2.3%—at a time capacity is rising 3.2%. Add in increased availability of paper from foreign sources and the result will probably be additional downward pressure on prices.

• **Corrugated boxes:** Constant dollar shipments are expected to climb by about 2% in real terms this year—representing a slightly lower rate of growth than reported for 1989 and slightly below the industry's longterm compound annual growth rate of 2.5% noted over the

past two decades. Corrugated exports, meantime, will slow significantly from the sharp annual gains of recent years, as box demand in major U.S. overseas markets (especially Canada and Mexico) cools.

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1990 demand trends: Uncle Sam's view

	% change in real demand '90/89
Sawmills and planing mills	2.5
Hardwood dimension & flooring mills	2.0
Millwork	2.0
Hardwood veneer and plywood	−2.0
Softwood veneer and plywood	−1.0
Wood pallets and skids	2.0
Pulp mills	3.0
Paper mills	2.3
Paperboard mills	2.3
Setup paperboard boxes	0.9
Corrugated and solid fiber boxes	2.0
Fiber cans, drums & similar products	1.0
Sanitary food containers	1.0
Folding paperboard boxes	1.0
Paper coated & laminated packaging	3.0
Bags: plastics, laminated & coated	3.0
Bags: uncoated paper & multiwall	−3.0
Envelopes	2.5
Stationery products	2.3
Manifold business forms	1.6
Alkalies and chlorine	2.0
Industrial gases	3.0
Plastics materials and resins	2.0
Synthetic rubber	2.0
Cellulosic manmade fibers	3.4
Organic fibers, noncellulosic	2.3
Paints and allied products	4.0
Cyclic crudes and intermediates	1.5
Nitrogenous fertilizers	−0.2
Phosphatic fertilizers	4.0
Adhesives and sealants	7.0
Petroleum refining	−0.3
Tires and inner tubes	1.5
Rubber & plastics hose & belting	2.0
Plastics bottles	3.6
Flat glass	−4.9
Glass containers	0.8
Cement, hydraulic	0.5
Brick and sturctural clay tile	0.8
Ceramic wall and floor tile	3.5
Concrete block and brick	0.2
Ready-mixed concrete	0.7
Gypsum products	2.4
Steel mill products	−4.1
Metal cans	3.1
Fabricated structural metal	−3.8
Screw machine products	2.0
Bolts, nuts, rivets and washers	2.0
Automotive stampings	2.0
Valves & pipe fittings	2.0
Farm machinery and equipment	3.4
Construction machinery	2.5
Mining machinery	2.5
Oil and gas field machinery	5.0
Machine tools, metal cutting types	1.0

Machine tools, metal forming types	1.8
Special dies, tools, jigs & fixtures	0.0
Power-driven handtools	−1.4
Welding apparatus	6.8
Textile machinery	4.4
Paper industries machinery	4.4
Printing trades machinery	1.2
Food products machinery	2.4
Pumps and pumping equipment	2.8
Ball and roller bearings	3.0
Air and gas compressors	2.5
Packaging machinery	2.5
Computers & peripherals	4.3
Refrigeration and heating equipment	2.2
Carburetors, pistons, rings, valves	−3.7
Transformers, except electronic	0.0
Switchgear and switchboard apparatus	2.0
Motors and generators	3.0
Relays and industrial controls	1.1
Current-carrying wiring devices	2.2
Noncurrent-carrying wiring devices	0.0
Lighting fixtures	2.0
Telephone and telegraph apparatus	2.1
Radio communication & detection equip.	4.0
Semiconductors and related devices	−4.8
Electronic parts ex semiconductors	1.7
Storage batteries	2.9
Engine electrical equipment	0.0
Motor vehicle parts and accessories	1.4
Motor vehicles, bodies	−2.2
Aircraft	2.6
Aircraft engines and engine parts	5.6
Aircraft parts and equipment	3.4
Ship building and repairing	−1.0
Instruments to measure electricity	4.8
Laboratory instruments	5.1
Measuring & controlling inst.	2.4
Surgical and medical instruments	10.0
Surgical appliances and supplies	9.0
Dental equipment and supplies	6.1
X-ray apparatus and tubes	2.0
Electromedical equipment	5.5
Photographic equipment and supplies	2.8

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• **Packaging paper and plastic film:** Demand should expand about 3% in 1990 as new applications develop and established markets expand—especially for the single-web plastic films and multiweb plastic laminates. Competition between shrink and stretch films will increase as each sector battles for market share in package wrapping, bundling, and unitizing.

• **Stationery supplies:** Sales of tablets, pads, and looseleaf fillers, etc., will advance 2.5% (in constant dollars) this year. Exports and imports will increase 5.0% and 4.5%, respectively, over the same period.

• **Machine tools:** The breakneck sales pace of last year when a 28% real increase was racked up is not likely to be repeated. Nevertheless, a small 1% increase still seems like a good bet as the industry works down its relatively large backlogs. Metal-forming types (up 1.8%) will be slightly better than metal-cutting types (up 1.0%).

• **Construction equipment:** Constant dollar growth is put at 2.5% for 1990. An expected increase in highway construction will help spur demand here. Unit prices should advance 2.4%—a bit under last year's 3.0% advance.

• **Pumps and compressors:** Figure on about 3% real growth. New demand is likely to come from the electric power industry as utilities seek to expand power stations to keep up with the growing demand for electricity. The repair and replacement parts market will also continue to be a major source of demand. Prices should advance about 2.5% (*versus* 3% last year).

• **Cooling and heating equipment:** The air-conditioning, refrigeration, and heating industry should advance 2.2% in real terms. This assumes continued growth for replacement products and relies primarily on two factors: increased replacement buying and the need to operate more efficient units. On balance, there should be more and more technological innovation as well as increased retrofit opportunities.

• **Motor vehicles and parts:** U.S. car sales should slip about 1%—to 9.9 million units. Trucks are also projected to fall by 2.2%. Auto parts, on the other hand, should rise 1.4%, thanks to increased domestic sourcing by the Japanese, an aging vehicle fleet, and increased exports.

• **Health-related equipment:** Manufacturers of medical and dental instruments and supplies should rack up an 8.2% real gain, compared to 7.7% last year. This breaks down as follows: surgical and medical instruments (10%), surgical appliances and supplies (9%), dental equipment and supplies (6%), and electromedical equipment (5.5%).

• **Component parts:** Relatively modest constant dollar increases are projected as follows: valves and fittings, fasteners, and screw machine products (all 2%), bearings, motors and generators, and storage batteries (all around 3%). One exception: a decline of 3.7% is seen for the carburetor, piston, ring and valve category.

Continued on page 70...

Fisher LabExpo 90

FISHERbrand equipment and supplies are described and pictured, and applications or procedures for which the product is best suited are recommended. General and Trademark products are featured. "New" items identified with sunburst. *Fisher Scientific, 711 Forbes Ave., Pittsburgh, PA 15219* **Circle 109**

Wire equipment

Full color, 144-page catalog contains technical details on complete line of products including wire cutting and stripping equipment, dereeling, measuring, and coiling units, component lead formers, infrared heat tools and equipment, and FybRglass industrial brushes. *The Eraser Co. Inc., P.O. Box 4961, Syracuse, NY 13221* **Circle 111**

Caster buying guide

The new 24-page "Condensed Buying and Specifying Guide" (Catalog No. 255) features complete specifications and illustrations of Hamilton Caster & Mfg. Co.'s products. Models added to this latest edition

include the "Stainless Steel" swivel and rigid casters; the red-designed 1,800 lb class ForgeMaster series; and heavy duty dual-wheel Maxi-Duty casters for capacities to 9000 lb. *The Hamilton Caster & Mfg. Co., 1637 Dixie Highway, Hamilton, OH 45011-4041* **Circle 116**

Warning signs, tags

EMED's catalog includes new asbestos removal and warning line of

products. The new products include asbestos removal bags, barricade tapes and pennants, floor stands, tags, signs, and decals that aid in compliance with OSHA's Hazard Communication Standard and EPA's AHERA regulations. *EMED Co. Inc., P.O. Box 369-BI, Buffalo, NY 14240* **Circle 102**

Chain system

Full-color brochure describes Cambridge/MCC MagetFlex Chain Systems, a sideflexing conveyor chain system. Patented design eliminates the need for clumsy hold-down tabs or beveled shoes to hold chain onto its track. *Cambridge Wire Cloth Co., Dept. 9B-3, P.O. Box 399, Cambridge, MD 21613* **Circle 58**

Paper cushioning

Brochure describes complete line of paper packaging materials for surface protection and cushioning. Highlighted are Jiffy Custom Wrap™ and Kushion Kraft® packaging materials. *Sealed Air Corp., 19-01 State Highway 208, Fair Lawn, NJ 07410* **Circle 99**

INDUSTRIAL OUTLOOK

...continued from page 31

• **Aerospace:** Constant dollar value of shipments this year should grow 3.5%—making for eight consecutive years of increase. Strong demand and output by the civilian sector (some 512 large commercial aircraft should roll off production lines this year—*versus* 445 in 1989) will offset declines in the military sector. Unit prices will rise by about 3%.

• **Electric and wiring equipment:** Constant dollar industry shipments of noncurrent-carrying wiring devices should remain virtually unchanged because of a flat overall construction market. But lighting fixtures should manage to eke out a small 2% real gain on a combination of retrofitting and modernization—plus some bottoming out in residential construction.

• **Photographic equipment and supplies:** A real advance of 2.8% is projected. While a bit under recent rates, the gain is still respectable and reflects 1) continuing development of photo-imaging products and 2) increased production of sensitized color paper and pre-sensitized plates by Japanese firms based in the U.S. Prices should rise about 4% on average.

• **Semiconductors:** While constant dollar shipments should be up 16%, the current dollar level should be off by 5%. Implication: a better-than-20% unit price decline. Also worth noting: the increasingly costly development of memory devices is forcing even the larger firms into joint R&D. In any case, the cost of new fabrication facilities is increasing at an exponential rate, with projections of $600-700 million for 16 megabit DRAM facilities.

• **Computers:** About a 4% gain in current dollar terms is seen. Spending on mid-range and large-scale systems, however, should remain weak. And spending for workstations should moderate. But there should be some additional advance in the microcomputer area. Another key trend: the industry is becoming increasingly internationalized, with the U.S. now facing strong competition from both Japan and Europe. Domestic outfits are also sourcing more components abroad. **PW**